



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,803	12/20/2001	Kanetaka Sekiguchi	011701	8645

23850 7590 03/31/2003

ARMSTRONG, WESTERMAN & HATTORI, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

DUONG, THOI V

ART UNIT PAPER NUMBER

2871

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,803

Applicant(s)

SEKIGUCHI ET AL.

Examiner

Thoi V Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the Amendment, Paper No. 7, filed January 06, 2003.

Accordingly, claims 1, 2, 7 and 8 were amended, claims 3, 7, 11 and new claims 35 and 36 were added. Currently, claims 1-36 are pending in this application.

Response to Arguments

2. Applicant's arguments with respect to claims 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-12 and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioji (JP 04-131893) in view of Margerum et al. (USPN 5,099,343) and Sumita (JP 53-097457).

As shown in Figs. 4-6, Shioji discloses a liquid crystal display (LCD) device comprising a liquid crystal display panel 11 in which a first substrate 23 formed with a signal electrode 19, 20 and a second substrate 24 formed with a counter electrode 21, 22 on one surface respectively are coupled together, with said signal electrode and said counter electrode opposed each other, with a fixed gap provided therebetween by

interposing a sealing part 28 at an outer peripheral part of a display area, and a liquid layer 27 is provided in the gap, wherein:

said signal electrode is composed of a surrounding electrode 20 formed over almost the entire area of said display area (see Fig. 2), a pattern electrode 19 isolatedly formed within said surrounding electrode, and a wiring electrode 15 formed across said surrounding electrode with a gap provided between said wiring electrode and said surrounding electrode in order to selectively apply voltage to said pattern electrode,

said counter electrode is provided over the entire area of said display area to face said signal electrode, and

an electric field from a voltage is applied across the liquid layer from a voltage source 35 by means of the signal electrode and the counter electrode (see Fig. 7).

Shioji discloses a LCD device that is basically the same as that recited in claims 1-12 and 25-30 except for a light source means which emits linearly polarized light being disposed outside a peripheral part of said liquid crystal display panel, a scattering type liquid crystal layer which changes in transmittance and scattering rate depending on existence or absence of application of voltage by means of said signal electrode and said counter electrode in which transparency increases in a part to which voltage is applied, and a sealing part facing the light source means has a light transmitting property to allow linearly polarized light emitted from said light source means to pass through said sealing part and enter said liquid crystal.

As shown in Fig. 3, Margerum discloses a LCD device 10' comprising a liquid crystal panel 12, a PDLC layer 16, a first substrate 32 formed with a signal electrode 20

Art Unit: 2871

and a second substrate 30 formed with a counter electrode 18, a light source means 34 which emits linearly polarized light (col. 8, lines 66-68 and col. 9, lines 1-3) being disposed outside a peripheral part of said liquid crystal display panel, and a scattering type liquid crystal layer which changes in transmittance and scattering rate depending on existence or absence of application of voltage by means of said signal electrode and said counter electrode, in which transparency increases in a part to which voltage is applied (col. 1, lines 20-49; col. 3, lines 62-68 and col. 4, lines 1-6) for increasing the display contrast (col. 2, lines 18-58),

wherein said liquid crystal display panel, in which an outside of said second substrate 18 is a visible side 54, always presents a condition outside said first substrate to the visible side, a luminosity of a scattering part, where the transparency does not increase, of said liquid crystal layer becomes higher than luminosities of other parts while a light source part of said light source means is turned on, and the luminosity of said scattering part of said liquid crystal layer becomes lower than the luminosities of the other parts while said light source part is turned off (col. 4, lines 20-35);

wherein said light source means comprises a light source part 34 and a polarization separating device 50 disposed between the light source part and an outer peripheral part of said liquid crystal display panel;

wherein an optical means composed of a diffuser 46 is provided between said light source part of said light source means and said polarization separating device;

wherein said scattering type liquid crystal layer of said liquid crystal display panel is a mixed liquid crystal layer composed of transparent solid substances and a liquid

Art Unit: 2871

crystal, which is produced by applying ultraviolet light to liquid composed of liquid crystal and organic monomers (col. 5, lines 34-46), and said polarization separating device is disposed so that a transmission axis thereof almost matches with a direction in which a difference between a refractive index of said transparent solid substance and a refractive index of said liquid crystal of said mixed liquid crystal layer is small (col. 5, lines 14-18);

wherein said polarization separating device is an absorption type polarizer having a transmission axis and an absorption axis substantially perpendicular to the transmission axis;

wherein a diffuser 46 is provided between said polarization separating device and said light source part, and a reflector 42 is provided around said light source part;

wherein an anti-reflection layer 33 for preventing reflection of light within a wavelength range of light emitted by said light source part is provided at least on an outer surface of said first substrate of said liquid crystal display panel; and

wherein said first substrate, said second substrate, said signal electrode and said counter electrode being all transparent (col. 3, lines 22-24 and lines 31-36); and

Margerum also discloses that the LCD device is widely used in industrial, consumer, aerospace, and other applications (col. 1 lines 11-12). Accordingly, as an intended use, the LCD device may be installed a finder optical system of a camera, and the pattern electrode of the LCD is an electrode for displaying an autofocus target pattern panel, wherein a finder screen is disposed outside said first substrate and a

finder lens is disposed outside said second substrate of said liquid crystal display panel respectively.

In addition, as shown in Fig. 2, Sumita discloses a LCD device 10 comprising a sealing part made of a transparent material to lead illuminating light without loss from a light source 19 to a display part 15 (see Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the LCD device of Shioji with the teachings of Margerum and Sumita by employing a light source means which emits linearly polarized light being disposed outside a peripheral part of the liquid crystal display panel, a scattering type liquid crystal layer which changes in transmittance and scattering rate depending on existence or absence of application of voltage by means of said signal electrode and said counter electrode, in which transparency increases in a part to which voltage is applied, and a sealant part facing the light source means having a light transmitting property to allow linearly polarized light emitted from the light source means to pass through the sealing part and enter the liquid crystal layer at an outer periphery part of the display area so as to improve the light illumination and to obtain a high contrast for the display.

5. Claims 19-22 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioji (JP 04-131893) in view of Margerum et al. (USPN 5,099,343) and Sumita (JP 53-097457) as applied to claims 1-12 and 25-30 above, and further in view of Kinoshita (JP 64-003631).

The LCD device of Shioji as modified in view of Margerum and Sumita above includes all that is recited in claims 19-22 and 31-34 except for a light intensity change means which controls increase and decrease of an intensity of light to make incident on said liquid crystal display panel in accordance with an intensity of light incident on said liquid crystal display panel from outside said first substrate is provided in said light source means. As shown in Fig. 1, Kinoshita discloses a LCD device that controls the illumination of a light source part 2, which illuminates the display region of the LCD device, with an illumination control means 41 by detecting the quantity of ambient light with an optical sensor 5. The illuminance of the light source part is variably controlled according to the use condition of the device (see Abstract). Accordingly, the light source part can selectively emits light in different optical wavelength regions and can be selectively turned on in accordance with brightness of environments or strength of incoming light, and period in which said light source part is turned on can be selected. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the LCD device of Shioji with the teaching of Kinoshita by employing a light intensity change means which controls increase and decrease of an intensity of light to make incident on said liquid crystal display panel in accordance with an intensity of light incident on said liquid crystal display panel from outside said first substrate is provided in said light source means so as to extend the life of the light source part without degrading display visibility.

6. Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioji (JP 04-131893) in view of Margerum et al. (USPN 5,099,343) and Sumita (JP 53-

097457) as applied to claims 1-12, 15, 16 and 25-30 above, and further in view of Honda et al. (Pub. No. US 2001/0033349 A1).

The LCD device of Shioji as modified in view of Margerum and Sumita above includes all that is recited in claims 13-18 except for a polarization separating device composing of an absorption type polarizer and a reflection type polarizer. Honda discloses a polarizer 70 (shown in Figs. 1 and 3) comprising an absorption type polarizer and a reflection type polarizer, each of which is placed so that polarizing transmission axes of the absorption type polarizer and the reflection type polarizer are coincident with each other on the same optical path (col. 1, paragraph 8). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the LCD device of Shioji with the teaching of Honda by employing a polarization separating device which composes of an absorption type polarizer having a transmission axis and an absorption axis substantially perpendicular to the transmission axis, and a reflection type polarizer having a transmission axis and a reflection axis substantially perpendicular to the transmission axis, and said absorption type polarizer is disposed on said liquid crystal display panel side and said reflection type polarizer is disposed on said light source part side respectively with directions of the respective transmission axes of said absorption type polarizer and said reflection type polarizer matching with each other for further enhancing the luminances of the polarizing light source and the display.

7. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioji (JP 04-131893) in view of Margerum et al. (USPN 5,099,343) and Sumita

(JP 53-097457) as applied to claims 1-12 and 25-30 above, and further in view of Dunn et al. (USPN 5,877,835).

The LCD device of Shioji as modified in view of Margenum and Sumita above includes all that is recited in claims 23 and 24 except for an ultraviolet cutting layer provided at least on one of outer surfaces of said first and second substrates of said liquid crystal display panel. Dunn discloses a LCD device comprising an ultraviolet cutting layer provided on a substrate to prevent UV transmission and aid in stabilizing the long-term driving voltage of the display (col. 2, lines 56-60). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the LCD device of Shioji with the teaching of Dunn by forming an ultraviolet cutting layer provided at least on one of outer surfaces of said first and second substrates of said liquid crystal display panel so as to prevent any contamination that may inadvertently modify the driving voltage.

8. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioji (JP 04-131893) in view of Margerum et al. (USPN 5,099,343) and Sumita (JP 53-097457) as applied to claims 1-12 and 25-30 above and further in view of Maruyama (USPN 6,075,951) and Kim (USPN 5,926,243).

The liquid crystal device) of Shioji as modified in view of Margenum and Sumita above includes all that is recited in claims 35 and 36 except for a heat insulating seal formed between formed between a panel holding frame and a panel fixing frame. As shown in Figs. 4(a) and 4(b), Maruyama discloses a camera comprising a fixing frame 104, a panel holding frame (not shown), and a liquid crystal display panel 103 installed

Art Unit: 2871

in a finder optical system of the camera for displaying an object image (see also Figs. 1(a) and 1(b) and col. 3, lines 4-10). Meanwhile, as shown in Fig. 1, Kim discloses a liquid crystal display device comprising a heat insulating seal 12 provided to thermally isolate liquid crystal 8 from the external environment and thereby prevent the liquid crystalline phase of the liquid crystal from being changed (col. 3, lines 36-42). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display device of Shioji with the teachings of Maruyama and Kim by installing the device in a finder optical system of a camera and forming a heat insulating seal between a holding frame and a fixing frame of the camera so as to obtain a display without deterioration in contrast due to the external environment.


Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (703) 305-3492.

Thoi Duong

03/19/2003


THOI V. DUONG
SUPERVISOR
TEC RESIST CENTER 2000